Alaska Native Village Air Quality Fact Sheet Series

Solid Waste Burning

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Why is burning solid waste a concern?

Solid Waste, another term for trash or garbage, is often burned in rural Alaskan communities where better disposal methods are not readily available.

The waste often contains plastic, Styrofoam, PVC, tires, electronic waste (e-waste) and other things that produce particularly dangerous air pollution when burned. Such burning takes place in residential burn barrels, open dumps, burn units, and landfills.

What are the health effects of burning trash?

Burning trash creates dangerous toxic smoke. This smoke has many tiny particles which can get deep into lungs, potentially increasing the risk of asthma, lung and heart disease, cancer, and other cardiovascular problems.

People exposed to smoke are also believed to be at increased risk of pneumonia and other infectious lung disease. Elders, children, pregnant women and people with heart or respiratory diseases (like asthma) are most at risk from breathing toxic smoke and smoke particles.

The smoke typically contains "dioxins" which are highly toxic pollutants known to cause cancer, as well as hundreds of other contaminants which may cause or aggravate lung problems. This pollution can be blown by the wind for some distance. When the contaminants fall to the ground and settle on subsistence foods, there is another opportunity for people, animals and plants to come into contact with dangerous substances.

Why should burn barrels be avoided?

Burning trash in residential burn barrel is discouraged because it produces toxic smoke near homes where it is most likely to impact people. If used, burn barrels should be perforated near the base to increase air flow and burn temperatures, and only used to burn paper and yard waste, not plastics, rubber, or electronic waste.

Burning trash in a wood stove or steam bath concentrates the toxic emissions in the indoor space and the smoke is even more dangerous. Trash should never be burned as a fuel in these devices.

Tips – when burning trash:

- Burn when wind will blow smoke away from the community.
- Prevent smoldering by burning only when materials are dry.
- Never burn electronics, rubber, batteries, plastics or other toxic materials.

Thick smoke from burning trash in a burn cage.

Other ANV Air Fact Sheets

- Diesel Fuel Use
- Road Dust
- Indoor Air
- Wood Smoke

For these fact sheets and related videos, visit: www.epa.gov/region10/tribal/air/alaska.html

What about landfill burning?

When trash is burned in a pile on the ground, or even in a burn cage or burn box, it burns at low temperatures that produce dangerous air pollution and particles. It tends to smolder and release toxic smoke over long periods, especially when wet. Burn boxes reduce safety risks and hazards from flying embers, but generally do not raise the temperature of burning trash sufficiently to reduce the dioxins emitted into the air.

Incinerators are burn units that use fuel to assist the burning and raise temperatures sufficiently to reduce the toxic emissions produced. However, incinerators are expensive and require fuel and trained operators. Incinerators, which subject to federal regulation, typically are not practical for small rural communities. New safer burning technologies are needed to better address the waste problems in rural Alaskan communities.

For many villages, the most practical option is to first remove plastics, electronics, batteries, and other such items from the trash to backhaul out of the community for proper disposal.

Then, a well-designed and operated burn box can burn the remaining separated trash safely at high enough temperatures to reduce the amount of toxic smoke produced.

How can the need for burning trash be limited?

Reduce: Find ways to reduce the quantity and volume of goods that are brought into the community that will need to be disposed of in the landfill, such as packaging and plastic bags. Choose long lasting items that will not need to be replaced frequently.

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Reuse: Find ways to put used items to other uses or make used items available to others. Choose reusable items rather than disposable ones. Switch to cloth bags rather than plastic bags for groceries.

Recycle: Set up recycling and backhaul programs that will keep goods from going to landfills for eventual burning. Compost household food waste.

How can health be protected?

Separate the trash so that whatever can be recycled or is hazardous to burn, such as plastic, lead acid batteries, used oil, and e-waste, is removed and disposed of more appropriately.

Be careful when choosing the location of burn boxes and the site of any burning. Burning should be conducted as far as possible from people, houses and locations where food and water are gathered. Be aware of the wind direction and only burn when the wind is blowing away from the village. Be sure the conditions are best for burning when the smoke will rise high into the air and away from the community.

The waste should be dry to burn quickly and reduce smoldering. Use a well designed and sited burn box. Have someone be responsible for ensuring the burn box is used and maintained properly.

Learn more on the web

EPA Region 10 Tribal Solid Waste Management Resources
http://www.epa.gov/wastes/wyl/tribal/index.htm

EPA National Tribal Solid Waste Resources
http://yosemite.epa.gov/R10/TRIBAL.NSF/programs/tribal_solid_waste

Open burning:
www.epa.gov/msw/backyard/

Alaska Department of Environmental Conservation Solid Waste Program:
http://dec.alaska.gov/eh/sw/index.htm

RurALCAP Solid Waste Resources:
www.aerho.org/solid_waste_mgt/solid_waste.html

Zender Environmental
www.zendergroup.org/viewdocs.htm